4.10 NOISE

This section describes the noise environment in the vicinity of the proposed Project and the potential impacts associated with the Project. The analysis is based on field surveys, a review of local and regional noise contours, and discussions with appropriate agencies.

4.10.1 Environmental Setting

Definitions

Noise is defined as unwanted sound that is heard by people or wildlife and that interferes with normal activities or otherwise diminishes the quality of the environment. Sources of noise may be transient, e.g., the passing of a train or aircraft through the area, or continuous, e.g., the hum of distant traffic or the operation of air conditioning equipment. Sources of noise may have a broad range of sounds and be generally nondescript or have a specific, readily identifiable sound, such as a car horn. The sources of noise may also be steady or impulsive. These characteristics all bear on the perception of the acoustic environment.

Noise is usually measured as sound level on a logarithmic decibel (dB) scale, with the frequency spectrum adjusted by the A-weighting network. The dB is a unit division on a logarithmic scale that represents the intensity of sound relative to a reference intensity near the threshold of normal human hearing. The A-weighting network is a filter that approximates the response of the human ear at moderate sound levels. The resulting unit of measure is the A-weighted decibel, or dBA.

To analyze the overall noisiness of an area, noise events are combined for an instantaneous value or averaged over a specific time period, e.g., one hour, multiple hours, 24 hours. The time-weighted measure is referred to as Equivalent Sound Level and represented by L_{eq}. The equivalent sound level is defined as the same amount of sound energy averaged over a given time period. The percentage of time that a given sound level is exceeded can also be represented. For example, L_{10} is a sound level that is exceeded 10 percent of the time over a specified period.

Effects on Wildlife

Wildlife response to noise is dependent not only on the magnitude but also the characteristic of the sound, or the sound frequency distribution. Wildlife is affected by a

broader range of sound frequencies than humans. Noise is known to affect an animal's physiology and behavior, and chronic noise-induced stress is deleterious to an animal's energy budget, reproductive success, and long-term survival (Radle 2001). Noise impacts to marine wildlife are detailed in Section 4.5, Biological Resources.

Effects on Humans

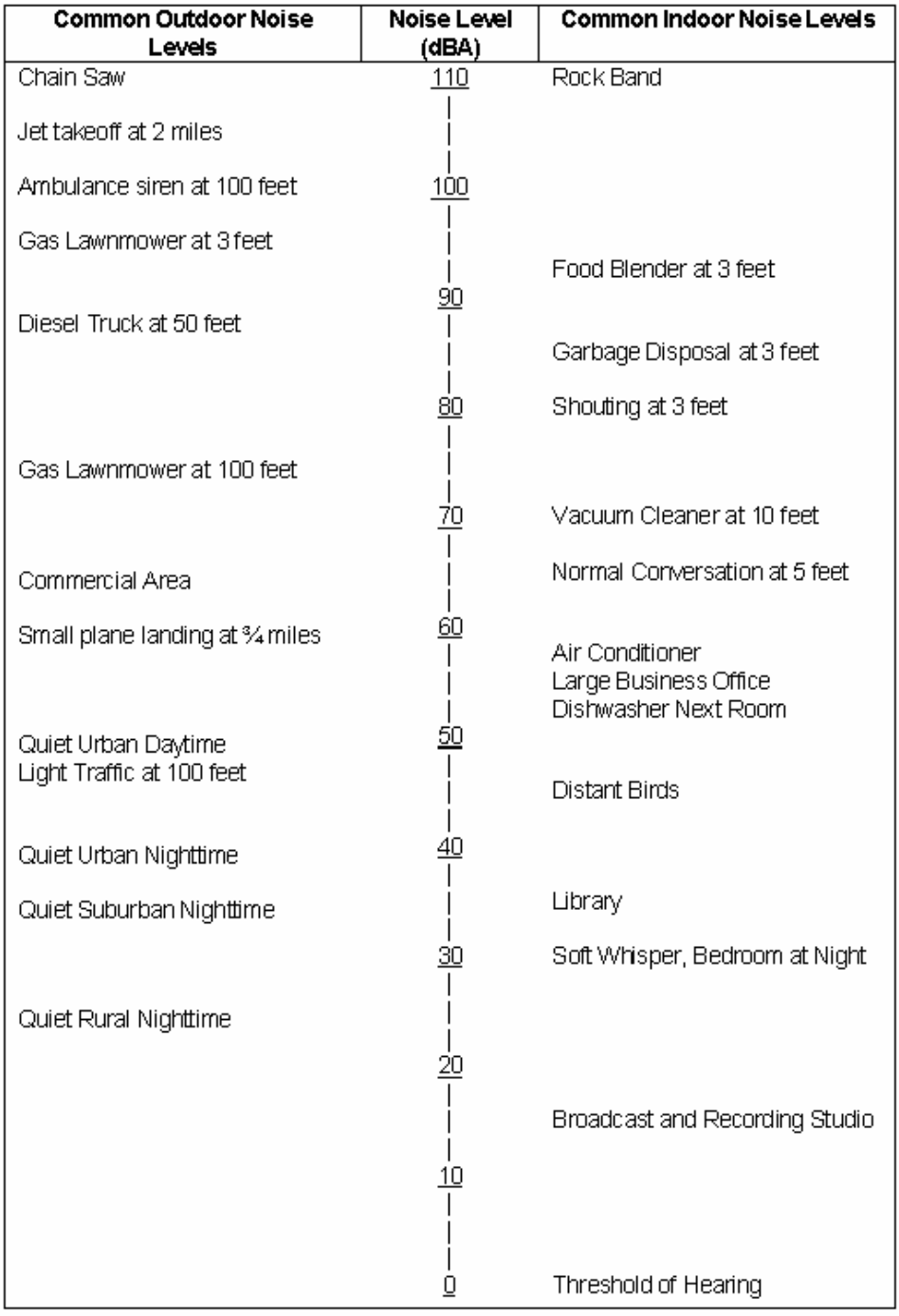
Human response to noise is dependent not only on the magnitude but also on the characteristic of the sound, or the sound frequency distribution. Generally, the human ear is more susceptible to higher frequency sounds than lower frequency sounds. This is reflected in the A-weighting, which essentially assigns a weighting of zero to sounds with a frequency below 10 cycles per second and has a maximum weighting for sounds with a frequency in the 2,000 to 5,000 cycles-per-second range.

Human response to noise is also dependent on the time of day and expectations based on location and other factors. For example, a person sleeping at home might react differently to the sound of a car horn than to the same sound while driving during the day. The regulatory process has attempted to account for these factors by developing overall noise ratings such as Community Noise Equivalent Level (CNEL) and the Day-Night Average Noise Level (L_{dn}) which incorporate penalties for noise occurring at night. The L_{dn} rating is an average of noise over a 24-hour period in which noises occurring between 10:00 p.m. and 7:00 a.m. are increased by 10 dBA. The CNEL is similar but also adds a weighting of 3 dBA to noises that occur between 7:00 p.m. and 10:00 p.m. Average noise levels over daytime hours only (7:00 a.m. to 7:00 p.m.) are represented as L_d and nighttime noises as L_n. Figure 4.10-1 is a scale showing typical noise levels encountered in common daily activities.

The effects of noise are considered in two ways: how a proposed project may increase existing noise levels and affect surrounding land uses and how a proposed land use may be affected by existing surrounding land uses. The Santa Barbara County Comprehensive Plan Noise Element focuses on particular types of land uses when measuring the effects of noise. These "sensitive receptors" include residences, transient lodging, such as hotels and motels, hospitals, nursing homes, convalescent hospitals, schools, libraries, houses of worship, and public assembly places.

When a new noise source is introduced, most people begin to notice a change in environmental noise levels at approximately 5 dBA. Typically, average changes in

Figure 4.10-1
Common Environmental Noise Levels



Source: Adapted from FAA 2005.

noise levels of less than 5 dBA cannot be definitely considered as producing an adverse impact. For changes in levels above 5 dBA, it is difficult to quantify the impact beyond recognizing that greater noise level changes would result in greater impacts.

In community noise impact analysis, long-term noise increases of 5 to 10 dBA are considered to have "some impact." Noise level increases of more than 10 dBA are generally considered severe. In the case of short-term noise increases, such as those from construction activities, the 10 dBA threshold between "some" and "severe" is replaced with a criterion of 15 dBA. These noise-averaged thresholds should be lowered when the noise level fluctuates, when the noise has an irritating character such as considerable high frequency energy, or if it is accompanied by subsonic vibration. In these cases the impact must be individually estimated.

Project Area Overview

Major sources of noise in the project area include breaking waves along the beach, occasional aircraft overflights (the Santa Barbara Airport is approximately 1.2 miles [1.9 km] from the EMT), and on-road traffic.

The primary sources of noise at the EMT are the shipping pumps used for loading the barge Jovalan. The pumps currently operate 25 to 40 times per year, 10 to 12 hours per loading. Other sources of noise are trucks that may be used for (1) transportation of oil in an emergency, or (2) transportation of oily water from the tank bottoms (after the barge loading line is hydrotested and the test water is discharged into one of the storage tanks).

On the north and east sides, the EMT is surrounded by trees that provide partial attenuation of the noise from the facility. The EMT is located within currently undeveloped land designated Open Space (see Section 4.7.1, Governing Land Use Plans). Currently, this land contains numerous pedestrian, equestrian, and/or bicycle trails that are heavily used by the public for recreation; one trail is as close as 150 feet (46 m) to the north and west from the EMT boundary. Several public beach areas are located within 1,000 to 1,200 feet (305 to 366 m) to the south and west of the EMT boundary. Currently, the closest existing and proposed residential areas are within 1,900 feet (579 m) of the EMT boundary.

The barge Jovalan mooring system is located approximately 2,600 feet (792 m) offshore. Noise from activities at the barge, e.g., tug and assist boat engines, barge

Vapor Recovery Unit engines, is not audible from the public beach or trails because of the dominant background noise of the surf.

Two noise studies were conducted to collect baseline noise levels: (1) on May 24, 2005, during the day and in the evening at the sensitive receptors in the project area, and (2) during the day on July 21, 2005. The first noise study was conducted during a time when no loading was occurring at the EMT; the second study was done during barge loading when both loading pumps at the EMT were operating. The data collected included L_{eq}, maximum levels, and minimum levels. It was observed that the noise levels were very similar when the EMT pumps were operating and when the pumps were shut down. Noise levels associated with the maximum reading were generally produced by the ocean surf for locations near the beach, or by traffic on nearby local roads for other areas. Noise from aircraft overflights associated with the Santa Barbara Airport could be heard from all locations. Background noise levels measured in the study area are shown in Table 4.10-1. Figure 4.10-2 shows a map of the background-noise-monitoring locations.

Table 4.10-1
Baseline Noise Levels in the Project Area

Location/Sensitive Receptor	Major Noise Sources	Distance to EMT, feet (m)	L_{eq}, dBA			
			Day	Eve.	Night	CNEL
1. Closest pedestrian and biking trail	Trucks, noise from EMT, aircraft	150 (46)	49.6	56.3	51.3	58.6
2. Public walking trails on ocean bluff	Ocean	1,000 (305)	63.8	63.0	58.0	66.4
3. Public beach area near EMT	Ocean	1,000 (305)	63.2	59.7	54.7	64.0
4. Ocean Meadows Golf Course	Grass mowers, aircraft	1,200 (366)	41.9	43.4	38.4	46.3
5. Residences to the northeast	People, aircraft	1,900 (579)	53.6	51.4	46.4	55.2
6. Residences to the east	Trucks, cars, aircraft	2,500 (762)	57.9	53.2	48.2	58.1
7. Devereux School	Cars, trucks, aircraft	2,300 (701)	54.1	55.2	50.2	58.1

Notes: Day is from 7 a.m. to 7 p.m.; evening is from 7 p.m. to 10 p.m.; night is from 10 p.m. to 7 a.m.

4.10.2 Regulatory Setting

Noise is regulated at the Federal, State, and local levels through regulations, policies, and/or local ordinances. Local policies are commonly adaptations of Federal and State guidelines, based on prevailing local conditions or special requirements. These guidelines have been developed at the Federal level by the Environmental Protection

Agency (EPA), the Federal Aviation Administration (FAA), the Federal Highway Administration (FHWA) and the Department of Transportation (DOT) and at the State level by the now-defunct California Office of Noise Control and by the California Department of Transportation (Caltrans). A summary of the regulatory setting for noise is provided below.

Figure 4.10-2
Noise Measurements Locations

Source: photo adapted from: Santa Barbara County 2004.

Federal

The FAA maintains jurisdiction over flight patterns for all aircraft. Federal Air Regulation (FAR) 36 establishes noise level criteria and measurement procedures for civilian fixed-wing aircraft. No specific regulations have been adopted for civilian helicopters.

The FHWA has established traffic-noise design levels for use in the planning and design of federally funded highway projects (see Table 4.10-2). These levels are based on the category of activity through which the freeway passes. These categories range from A, for areas of extraordinary significance, to E for interior noise impacts, as described below. Category D is applicable to undeveloped lands and has no specific L_{eq} or L_{10} value.

Table 4.10-2
FHWA Traffic Noise Design Levels

Category	Category Description	L_{eq}	L_{10}
A	Tracts of land in which serenity and quiet are of extraordinary significance. May include parks, open spaces, or historic districts.	57	60
B	Picnic areas, recreation areas, playgrounds, and other parks. Also, residences, hotels/motels, churches, libraries, and hospitals.	67	70
C	Developed lands.	72	75
E	Residences, hotels/motels, churches, libraries, and hospitals.	52 (interior)	55 (interior)

Notes: These noise levels are based on hourly L_{eq} or hourly L_{10} levels for interior and exterior exposure of surrounding land uses. Category D is applicable to undeveloped lands and has no specific L_{eq} or L_{10} value, and therefore is not mentioned here.

Source: FHWA 1982.

Under the authority of the Noise Control Act of 1972, the U.S. EPA has established noise emission criteria and testing methods (40 CFR Chapter 1, Subpart Q). These criteria apply to interstate rail carriers and to some types of construction and transportation equipment.

The DOT has established allowable noise levels for motor vehicles (49 CFR Chapter III, Part 325). These standards address measurement protocols for measuring highway noise, instrumentation, and stationary testing procedures. In addition, the Department of Defense has established noise compliance requirements.

State

The California Administrative Code, Title 4, which applies to airports operating under permit from the Caltrans Division of Aeronautics, defines a noise-impacted zone as any residential or other noise-sensitive use with CNEL 65 and above. The California Administrative Code, Title 2, establishes CNEL 45 as the maximum allowable indoor noise level resulting from exterior noise sources for multi-family residences.

The California Streets and Highways Code, section 216 (Control of Freeway Noise in School Classrooms) requires, in general, that Caltrans abate noise to 55 dBA, L_{10}, or 52 dBA, L_{eq} or less. Caltrans Policy and Procedure Memorandum P74-47 (Freeway Traffic Noise Reduction, September 24, 1974) outlines the Caltrans policy and responsibilities related to transportation noise. In the California Government Code, section 65302, Caltrans is also required to provide cities and counties with a noise contour map along State highways. The State Motor Vehicle Code includes regulations related to the selling and use of vehicles that do not meet specified noise limits.

Local

The Goleta Community Plan Policy N-GV-1 protects noise sensitive interior uses by minimizing noise impacts.

The Santa Barbara County regulations regarding industrial facilities specify 75 dB L_{dn} as the maximum volume of sound measured at any point along the property line of an industrial facility (Santa Barbara County 2000). The Santa Barbara County Noise Element (Santa Barbara County 1986) includes a recommended policy that states:

> *"In the planning of land use, 65 dB Day-Night Average Sound Level should be regarded as the maximum noise exposure compatible with noise-sensitive uses unless noise mitigation features are included in project designs."*

Policy No. 9 of the Noise Element states:

> *"Noise level limits, applicable to new noise sources, should be incorporated into all commercial and industrial zoning districts and into conditional use permits."*

The sound levels within the UCSB campus are governed by the Long Range Development Plan (LRDP) (UCSB 1990).

4.10.3 Significance Criteria

A noise impact is considered significant if noise levels from project operations exceed the local policies and noise standards. Thus, the noise policies of the Santa Barbara County and the city of Goleta should be adhered to, as well as the UCSB Long Range Development Plan of 1990 sections 30240(b).16 through 30240(b).18, for the areas of the Campus:

- Outdoor living areas of noise sensitive uses that are subject to noise levels in excess of 65 dBA CNEL would generally be presumed to be significantly impacted by ambient noise. A significant impact would also generally occur where interior noise levels cannot be reduced to 45 dBA CNEL or less (Santa Barbara County 2002).

- At Coal Oil Point the maximum allowable sound level shall not exceed 60 dBA.

- A project will generally have a significant effect on the environment if it will increase substantially the ambient noise levels for noise-sensitive receptors adjoining areas. This may generally be presumed when ambient noise levels affecting sensitive receptors are increased to 65 dBA CNEL or more. However, a significant effect may also occur when ambient noise levels affecting sensitive receptors increase substantially but remain less than 65 dBA CNEL, as determined on a case-by-case level (Santa Barbara County 2002).

- Noise from grading and construction activity proposed within 1,600 feet (488 m) of sensitive receptors, including schools, residential development, commercial lodging facilities, hospitals or care facilities, would generally result in a potentially significant impact (Santa Barbara County 2002).

- Neighborhood parks are compatible with Ldn values up to 70 dBA, golf courses and riding stables are compatible with Ldn values up to 75 dBA (Santa Barbara County 1986).

4.10.4 Impact Analysis And Mitigation

Impact N-1: Increased Noise from Pumps and Barge Engines

The proposed Project would increase the number of days per year that night noise is produced at the EMT (Less Than Significant, Class III).

Impact Discussion

Currently, noise sources associated with the EMT consist mostly of the shipping pumps and maintenance trucks. Oil-loading operations currently occur approximately once per week, or 25 times per year, 14 to 15 hours per day. When inspections or maintenance activities are occurring at the EMT, large oil transportation trucks could be present and create noise; however, these activities are infrequent.

With the proposed Project, operation of the loading pumps would be more frequent, since the number of barge loadings could reach 88 per year (SBCAPCD 2004). Inspection or maintenance frequency would not change with the Project. The level of noise at the EMT would be the same because there would be no change in equipment, and the duration of each loading would stay the same. Therefore, the daily CNEL or any daily noise would not change, and the Project would have adverse, but less than significant noise impacts (Class III).

Table 4.10-3
Summary of Noise Impacts and Mitigation Measures

Impact (Impact Class)	Mitigation Measures
N-1. Increased noise from pumps and barge (Class III)	No mitigation is required, less than significant impact.

4.10.5 Impacts Of Alternatives

Detailed descriptions of the various alternatives have been provided in Section 3, Alternatives. This section provides a discussion of the noise impacts of the various alternatives.

No Project Alternative

Under the No Project Alternative, Venoco's lease would not be renewed and the existing marine terminal would be subsequently decommissioned with its components abandoned in place, removed, or a combination thereof. Under the No Project Alternative, an alternative means of crude oil transportation would either need to be in place prior to decommissioning of the EMT or production at Platform Holly would cease. For purposes of this EIR, it has been assumed that the No Project Alternative would result in a decommissioning schedule that would consider implementation of one of the described transportation options. As a result, noise impacts would occur at current levels under this alternative. Noise could result from the new method of oil

transportation, however, and the extent of this noise cannot be known until the oil transportation method is defined.

If the EMT facilities are abandoned (except abandonment in place) and removed, significant short-term noise impacts could result from removal. Noise impacts due to abandonment would be addressed in a separate environmental document.

Truck Transportation

Impact N-2: Increased Noise from Trucks

Oil transportation trucks would produce noise along the transportation route (Less Than Significant, Class III).

Impact Discussion

If this method of crude oil transportation is selected, the produced oil would be shipped from the EOF via trucks to Carpinteria, instead of being shipped by barge through the EMT.

Noise associated with trucks transporting oil would slightly increase along the existing roads. There would be a maximum of 82 trucks per day (164 one-way trips), or 3 to 5 (6 to 10 one-way trips) trucks per hour in the worst case scenario. This would result in a very small level of noise increase along Hollister Avenue, i.e., 0.1 dBA as calculated using Sound 2000 software (Caltrans 2000). For highways, this level of impact would be even less noticeable because of large volumes of vehicles already travelling on these highways. Thus, noise impacts from the Truck Transportation Alternative would be adverse, but less than significant (Class III).

Pipeline Transportation

Impact N-3 Noise from Construction Machinery

Pipeline construction machinery would produce short-term noise in the vicinity of the pipeline right-of-way (Potentially Significant, Class II).

Impact Discussion

Operation of the pipeline would have no noise impacts. Short-term noise impacts would occur due to construction of the pipeline in areas where sensitive receptors are close to the pipeline right-of-way (ROW).

Currently, day background L_{eq} noise levels along the proposed pipeline ROW, in the vicinity of the Bacara Resort, Sandpiper Golf Course, and residences on the north side of Highway 101 are in the range of 60 to 62 dBA, as determined by the noise study performed on August 9, 2005.

Noise levels from pipeline construction machinery were modeled using documented noise levels (EPA 1971) from typical pipeline construction machinery and equipment. Noise at 50 feet (15 m) from the pipeline ROW could reach 90 dBA L_{eq}; however, at 1,000 feet (305 m), L_{eq} would be 64 dBA. The pipeline would be constructed near the Bacara Resort and residences on the north side of U.S. Highway 101. Depending on the exact route, the pipeline could be as close as 200 feet (61 m) to these sensitive receptors, where L_{eq} could reach 78 dBA. This impact would be short term, but it would be potentially significant.

Depending on the terrain, soil properties, and the boring machine used for pipeline construction, boring activities may be necessary during evening or night hours. If boring is conducted during the evening or night hours, CNEL could be in excess of 75 dBA, which would be a potentially significant impact (Class II).

Mitigation Measures

N-3a. **Noise Reduction Plan.** The Applicant shall prepare a noise reduction plan which shall be approved by Santa Barbara County and the city of Goleta. The plan would include but not be limited to the following measures:

- Post notifications to the residents and landowners about the planned pipeline construction near their residence/land at least one week before construction at that location.

- Ensure that construction activities do not occur between 7:00 p.m. and 7:00 a.m. on weekdays and Saturdays and not at all on Sundays or holidays unless specifically required by permits or at the direction of the county/city staffs.

- Ensure that all internal combustion engines are properly maintained and that mufflers, silencers, or other appropriate noise-control measures function properly.

N-3b. Noise from Boring Reduction Measures. If boring under Highway 101 or any other noise-producing activity during the pipeline construction is required to be conducted during the evening or night hours (from 7 p.m. to 7 a.m.), the Applicant shall locate the boring machine entry pit on the north side of the highway and provide temporary noise barriers to minimize noise at the residences on the northeast side of the highway.

Rationale for Mitigation

Limiting the hours of construction would reduce impacts during times when the noise could produce the most impact. Notification of the landowners would ensure that they are prepared and could potentially help reduce impacts by keeping windows closed and limiting outside activities. Ensuring that all machinery is maintained would ensure that operation would produce the lowest possible noise level.

Locating the boring machine entry pit on the opposite side of the highway from the Bacara Resort would add distance between the boring machine and the sensitive receptor. Noise barriers would further reduce evening and night noise from the boring machine.

4.10.6 Cumulative Projects Impact Analysis

No other industrial projects are proposed in the vicinity of the EMT. The residential and commercial projects proposed in the project area would contribute to the background noise; however, because the proposed Project would not have any noise impacts, it would not contribute to the cumulative impacts.

Several industrial projects are proposed offshore of the Santa Barbara County coast and other areas of the California coast, where the proposed Project could produce cumulative impacts due to the barge Jovalan's trips to refineries in the Los Angeles and San Francisco areas. However, noise impacts occur only when the source is in close proximity to a sensitive receptor. There are no sensitive receptors offshore or within the ports that the barge Jovalan would enter. Therefore, the Project would not contribute to cumulative noise impacts.

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